

Serial No. 09/782,101

**In the Claims**

Please substitute the following claims for those currently on file in the application:

1. (Canceled)

2. (Canceled)

3. (Canceled)

4. (Canceled)

5. (Canceled)

6. (Currently Amended) An arrangement for buffering, during at least a finite predetermined retention time, a digital optical signal having a predetermined digital level, comprising:

a semiconductor laser element with an injection current threshold of operation, below which optical loss exceeds optical gain and above which optical gain exceeds optical loss, and optical input for receiving the optical signal;

a current source connected to said semiconductor laser element and arranged to inject an injection current to said semiconductor laser element to establish an optical gain process in said semiconductor laser element, the injection current having an amplitude at said threshold of operation such that said optical gain and said optical loss within said semiconductor laser element are equal in order to keep said digital optical signal on said predetermined digital level;

a controller connected to said current source to provide a current control signal to said current source to control an amplitude of said injection current; and

an optical detector arranged to detect optical power content of said semiconductor laser element and to provide a feedback signal to said controller, said controller being arranged to generate said current control signal in dependence on said feedback signal.

7. (Canceled)

8. (Canceled)

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